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ABSTRACT

This unit, consisting of 12 multi-activity lessons, was designed to accompany a field trip to Walney, a park site near Centreville, Virginia, but may be adapted for independent use. The unit focuses on the task of an archaeologist. Archaeological sites, artifacts, and historical records are examined by students in order to develop an understanding of the work of an archaeologist, and to experience the archaeological process. The stories which artifacts can unfold are explored through the use of archaeological techniques. Each lesson includes objectives, notes to the teacher, materials, and activities. Enrichment suggestions and reproducible student activity and discussion sheets are provided for several lessons. Contains 14 references for further reading. (MM)

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Archaeology: Walney

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Archaeology: Walney

Written by Michael Harrison, 1984
Revised by E. J. Fry and Jennifer Simmons, 1993
Designed by David Baselt, 1995

Outreach and Educational Support
Resource Management Division
Fairfax County Park Authority
Fairfax, Virginia
January 1996

Introduction

Purpose of the unit

The purpose of this unit is to assist teachers in providing their students with an understanding of archaeology and its tasks, and with archaeological experiences in problem solving situations. Research indicates that many students find social studies to be an uninteresting subject. Research also indicates that social studies lessons and textbooks generally focus on knowledge and comprehension level objectives. This unit uses knowledge and comprehension level objectives to develop a foundation of understanding of the topic. In addition, this unit employs the higher level objectives of application, analysis, synthesis, and evaluation in order to expand this understanding and to develop skills of critical thinking. It is hoped that meeting these objectives will stimulate student interest and participation in the unit, and also nurture in them the habit of critical thought.

Emphasis of the unit

Integrated POS objectives

Lessons and activities of this unit are designed to meet a number of POS objectives in different areas of study. This does not represent additional work or material for the student or teacher. Rather, it is an organized way in which they can meet pre-existing objectives of the FCPS. Teachers may choose the most appropriate enrichment activities for their student from those which are provided.

Critical thinking

This unit is designed to provide a full range of cognitive learning experiences in order to help students develop the skills and habits of critical thinking.

Teacher convenience

This unit is organized in such a way that objectives, strategies, and a list of materials are readily available. Lesson, discussion, and activity sheets (with and without answers) accompany the unit. A teacher management tool and a student assignment sheet are also provided in order to assist in the organization of the unit and the evaluation of student progress. Foundation and higher level questions are suggested to stimulate participation and learning.

Field trip

This unit is designed to incorporate a field trip to Walney, a Fairfax County park site near Centreville. In this regard, the unit has three components: pre-visit lessons and activities to be completed in the classroom prior to the field trip; on-site lessons and activities to be completed at Walney and conducted by the park staff; and, post-visit follow-up lessons and activities back in the classroom following the field trip.

Unit Overview

This unit focuses on the tasks of an archaeologist. These tasks are pursued by the student in different situations in order to support student learning. Archaeological sites, artifacts, and historical records are used by the student in order to develop an understanding of the work of an archaeologist, and to experience the archaeological process. The stories which artifacts can unfold are examined through the use of archaeological techniques. Two artifacts receive major attention. Teachers will focus some lessons on both of these artifacts. One artifact is a carved stone face found in a keystone over a door of a house built at Walney in 1780. The other artifact is a time capsule placed in a wall of the same building in 1875. The farm at Walney was first developed in frontier forest in 1743 for the growing of tobacco, and reflects many stages of land use and occupation. Students will use archaeological techniques and a wide range of cognitive skills throughout the unit.

Lesson 1

Identify and describe the role of an archaeologist

Note to the teacher

Archaeology is the study of past human life and activities. An *archaeologist* seeks to learn about culture from the fragmentary remains of the products of human activity. *Culture* is a system of habits and customs acquired by people and carried by their society.

Activity

Materials: *Paper and pencils*

1. Ask the students to close their eyes and picture a room in their house. Picture all items that are in it. Have them list as many as 10 items from this room which they pictured. Some students may share their lists with the class. Ask students to determine the use of the items, and what they tell about the people who live in the house.
2. Propose a hypothetical situation. Each student takes the items from the list, digs a hole, and buries them. If these items remain there for 200 years, how will they change? (Consider the effects of heat, cold, rain, etc.) What will be left? Will items be recognizable? Will the functions of different items be apparent?
3. Two-hundred years later these items are discovered. Ask students what people from that future time would be able to tell about them, about their lives, about what they did for fun, about their habits, their families, etc. What questions about the students might these people from the future wish to answer? What difficulties might they have in doing so?
4. Explain to students that this is an example of what an archaeologist does. Introduce the italicized words above, and discuss their relationship to the hypothetical situation.

Lesson 2

Recall and use archaeological terms

Note to the teacher

Discussion sheets are provided with many of the lessons to aid in the development of the objectives. These lesson summaries have been prepared for the use of students during discussions and follow-up activities. It may be useful for students to keep these sheets in folders for quick reference. They may be duplicated and distributed. If the teacher prefers, the summaries may be used as a guide for chalkboard presentations, bulletin boards, or displays. Archaeologists differentiate between the types of materials they find at a site (a location where artifacts have been found), based on the origin of the artifacts (human-made or not), and mobility. These materials may be classified as either:

Artifacts: human-made objects such as pots, axes, points, and baskets.

Features: culturally-produced objects which cannot be removed from the site, such as walls, burials, and fire pits.

Natural materials: natural objects probably used by humans, such as seeds, shells, and bones.

This activity is designed to introduce the above terms to students, and to provide opportunities to classify materials into these categories.

Activity

Materials: *Student discussion sheet,* ***What Might an Archaeologist Find?*** *(p. 5)*

Paper and pencils

Sample artifacts, features, and natural materials (items from the classroom, home, or pictures may be used).

1. Discuss with students the role of an archaeologist as determined in the previous lesson. Point out that materials which archaeologists work with are classified into three different categories: artifacts, features, and natural materials.
2. Duplicate and distribute student discussion sheet **"What Might an Archaeologist Find?"** Discuss the categories. Point out how the materials are differentiated. Ask students to think of additional items which might be classified into each of the three groups.
3. Ask students to recall the items which they pictured from their homes in the previous lesson. How would they classify — place those items into categories, ie., artifact,

feature, or natural ? (Most items may be human-made. If this appears to be the case, ask students what this may indicate about our society.)

4. Present the collection of sample items to the students. After they have examined them, ask the class to classify these items. This may be done as a total group activity or in small groups. If small groups are used, have each group report its conclusions to the class to determine if all groups classified the items in a similar manner. Discuss items on which there may be disagreement.

What might an archeeologist find?

Artifacts

Human-made objects such as pots, axes, arrowheads, and baskets.

Features

Culturally-produced objects that cannot be removed from the site, such as walls, burials, and fire pits.

Natural materials

Natural objects probably used by humans, such as seeds, shells, and bone.

Lesson 3

Describe the tasks of an archaeologist.
Recall archaeological techniques for the location of sites.

Note to the teacher

The tasks of an archaeologist may be summarized in the following manner:

Location of materials: where and how do we look?

Collection of materials: how do we excavate a site? How do we find additional information? How do we handle artifacts when located in the site?

Description of materials: where was it found, how old is it, what does it look like, how was it made?

Explanation of materials: who made the object? Who used it? Why was it used? How was it used?

This lesson introduces the components of the archaeological task to students, and gives them a more specific view of the work of an archaeologist. This lesson also addresses the first task, location of materials, in more detail. The lessons which follow this lesson develop a knowledge of the skills and techniques required to do each of the additional archaeological tasks. Activities provide students with the opportunity to apply these skills and techniques.

Activity 1

Materials: *Student discussion sheet,* ***Archaeological Tasks*** *(p. 9)*

1. Duplicate and distribute student discussion sheet **"Archaeological Tasks."** Discuss the four tasks of an archaeologist, and the types of questions which each task addresses. Point out how each task is built upon what was accomplished in a previous task: You cannot find materials until a site is located; you cannot describe materials until they are found, etc.
2. Ask the class what other questions may be answered by the completion of each of the tasks. Have them determine why this information may be useful. How does it help archaeologists piece together their story?
3. Have students apply these questions to the items from their homes, or from the items used in the classroom from the previous lesson. Ask students if more and more details about our times become available as these questions are addressed.

Activity II

Materials: *Student discussion sheet,* ***"Location of Sites"*** *(p. 10)*

1. Duplicate and distribute student discussion sheet **"Location of Sites."** Review with students each example of how archaeological sites might be determined.

   Chance: Have students ever found a point, an old bottle, or a newspaper? Discuss their experiences. However, most sites are systematic field studies using surveys where sites have been found before.

   Historical records: Written material gives clues to site locations. Old maps, journals, letters, books, old photographs, paintings, and old town records can be used to locate sites very specifically. One example would be Williamsburg or Jamestown. An extreme example is the work of Heinrich Schliemann, a 19th century archaeologist who found ancient Greek sites by following leads from the epic poems of Homer. Discuss the reliability of such sources. Why might it vary considerably?

   Photos, paintings, drawings: Old photos, illustrations, and images from the past give clues to where useful sites may be found. Discuss, for example, what clues might we get from an oil painting of the streets of Colonial Williamsburg? From a drawing of an early Iroquois village?

   Personal recollections: The memories of parents, grandparents, and old family stories may be quite familiar to many students. These stories can point out useful sites to the archaeologist. Discuss the reliability of such sources.

   Special techniques: Science and technological developments can assist the archaeologist. Special techniques include the use of infra-red photography (from the air over likely spots to determine specific locations), metal detectors, special underwater vacuums and side-scan sonar. Both the side-scan sonar and underwater vacumns are used to find underwater sites and excavating those sites.

2. Discuss these examples with students. Some may be familiar with one or more approach. Have these students share their experiences.

Enrichment

Have students research the work of archaeologists such as Heinrich Schliemann, Sir Arthur Evans, or Howard Carter. While these men are credited with exceptional archaeological finds (the Greek cities of Mycenae and Troy; Knossos in Crete and its Palace of Minos; King Tut's tomb in Egypt), much of their time was spent in **looking** for sites. Many reference books will tell their stories. An excellent source for the talented reader is *The Bull of Minos* by Leonard Cottrell (New York: Grosset & Dunlap, 1962), or *Going on a Dig: A Guide to Archaeological Field Work* by R.K. Moffett (New York: Hawthorn Books, Inc., 1975).

Several areas like Williamsburg, Jamestown, Walney, and Sully Plantation are some of the archaeological sites in this area.

Archaeological tasks

Location

Where do we look?

Collection

How do we find useful materials?

Description

Where was the material found?

How old is it?

What does it look like?

Explanation

Who made it?

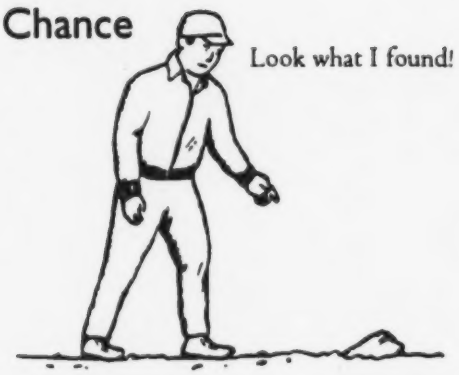
Who used it?

Why was it used?

How was it used?

Location of sites

Chance



Historical records

Books, maps, journals, letters

Photos, paintings, drawings

Personal recollections

Special techniques

Lesson 4

Describe the tasks of an archaeologist.

Recall archaeological terms of techniques and tools used in archaeological excavation.

Discuss the need of good records of all stages during an excavation process.

Note to the teacher

Once archaeologists have located a site, a ***control pit*** is dug outside of the site to determine the nature of the soil and deposits in an undisturbed state. This helps the archaeologist recognize disturbances on the site. The boundaries of the site are marked off. The archaeologist then has a choice of five methods of excavation (digging styles) to use depending on the size of the site. The methods are:

Vertical: Uses grids, stratum by stratum is removed in the grid squares until bedrock or no artifacts are located; walk-ways "baulks or balks" are left in between the grid squares; the baulks are excavated after the squares are finished.

Horizontal: One large site is excavated at a time; provides view of the whole site; and is the most commonly used today.

Narrow trench: Used for defensive banks, walls, and ditches; sometimes used as a test dig covering several grid squares; and used to establish a profile of the stratums in a site.

Vertical face: The first stratum is removed from the site; the site is divided in to half; one half is excavated to the stratum; the other half is excavated stratum by stratum; useful for floors and ceremonial sites.

Half-sectioning or sectioning: This method involves dividing the site in half; one half is excavated stratum by stratum leaving the other half for studying the vertical layers; the remaining half is excavated after being studied.

Tools used by archaeologists during an excavation are:

- Masonry trowels, pruning shears, pocket knives
- Picks, axes, shovels, hoes, dust pans
- Assorted brushes — toothbrushes, hearth brushes, paint brushes
- Probes and other dental tools, rulers

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Excavation methods

Horizontal

One large site is excavated at a time; provides view of the whole site. The most commonly used form of excavation today.

Narrow trench

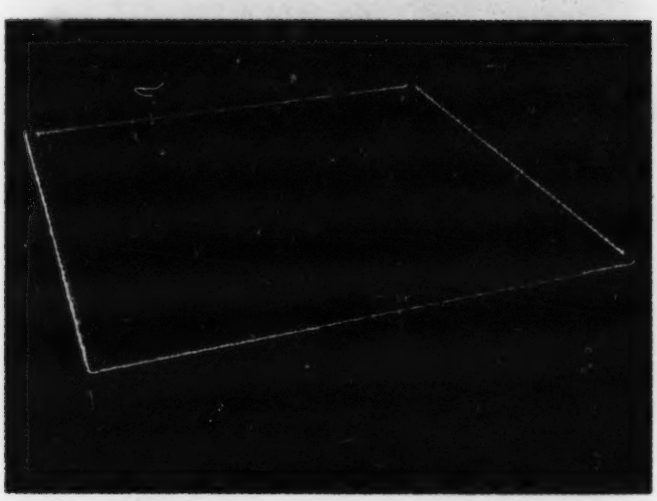
Used for defensive banks, walls, and ditches; sometimes used as a test dig at a site; used to establish a profile of strata in a site.

Vertical

Using grids, strata are removed one-by-one as long as artifacts are found. Balks are left for walkways and are excavated as squares are finished.

Vertical face

First stratum is removed from the site, the site is divided in half, and one half is excavated to the next stratum. Useful for floors and ceremonial sites.



Half-sectioning/sectioning

The site is divided in half and one half is excavated stratum by stratum, leaving the other half for studying the vertical layers. The remaining half is excavated after studying.

- Buckets, containers, padding, wooden stakes or pegs, string; Paper — graph, drawing, report forms, labels (two for each artifact), transparent film (drawing site and artifacts)
- Pencils for the field and ink for final reports and drawings
- Water, plaster of Paris.

The archaeologist makes a ***contour drawing*** (present condition of site and lay of the land), decides which method of excavation to use; and which scale the ***measurements*** of the location will be in-1:5; 1:10; 1:15; 1:20; or 1:50. The size of the site will help determine which scale will be used. For example, an area that is large like roads would use a scale of 1:20 or 1:50, while a small site like a house a scale of 1:5 or 1:10 would be used. A scale of 1:20 would work out as one cm square of the graph paper would equal 20 cm of the site surface. Measurements of the stratums are measured vertically and horizontally in inches or by centimeters. These two measurements are important in the recreation of the site and its artifacts. ***Grids*** are placed over the site using the four main compass directions and are given ***coordinates*** beginning with the ***datum point*** (center point of the grid and starting point of the measurements (see the teacher's copy of the **"Grid Activity"** worksheet). Some excavation methods require the top stratum to be removed — artifacts found in this layer are recorded; then set aside until the site is to be refilled; artifacts are placed in the same location as found.

The activities are designed to introduce the designated terms to the students, and to provide students with the opportunity to apply techniques and skills used during the excavation process.

Activity I

Materials: ***Student discussion sheet, Grid Activity (p. 14)***

Rulers — metric or inches

Pencils

1. Tell the students that a possible site has been located. Ask what should be done next. Discuss their suggestions.
2. Through discussion with the students about the need for good records in order to recreate where in the site the material was found. Ask how specific locations might be determined. Introduce the concepts of the grid and the vertical stratum depth. Use the chalkboard to explain the gridding procedure. Present the concept of axis lines. Have students place coordinate numbers on selected grids to help develop the concept. Introduce the term *provenience* (an artifact's vertical and horizontal location on the grid) to the students.
3. Duplicate and distribute student activity sheet **"Grid Activity"**. This worksheet is designed to provide students with an opportunity to apply archaeological techniques

relate to excavation of a site. Review the assignment with the class. Assist those who require additional help. 4. After students have had time to complete their worksheets, review responses with the class. Ask how a grid might be constructed in the field. Would it be practical to grid an actual site in 1 cm squares? Why? What might be a workable size? (Answers on p. , number 7)

Activity II

Materials: *Student discussion sheet,* Excavation Methods *(p. 16)*

A "sand box" (a box with four sides and a bottom, measuring 4'X 4'X 4" ; 3'X 3'X 4"; or 2'X 2'X 4")

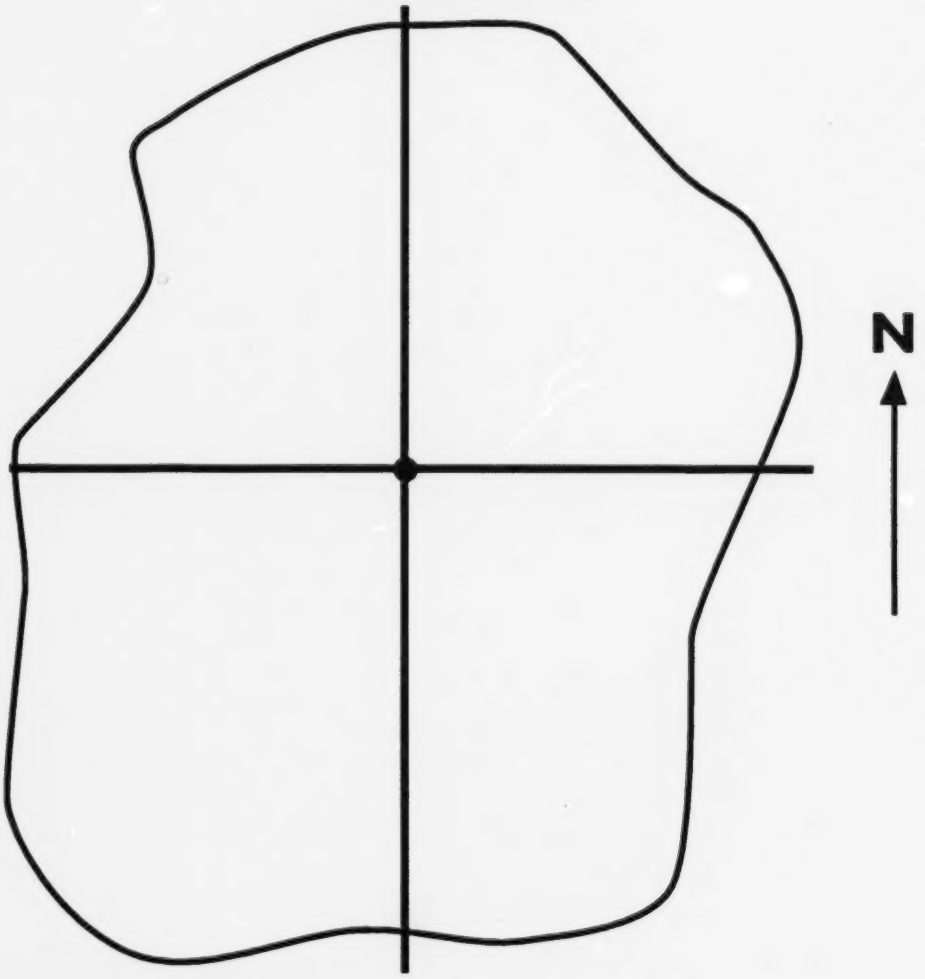
Colored sand, colored dirt, or similar material

Sample artifacts like buttons, coins, etc.

Paint brushes, paper, pencils, rulers

1. Place the sand and artifacts in layers representing different strata. Have the students work in groups; each group using one of the methods presented; appoint a reporter who will be responsible for recording artifacts; where the artifacts where found; and a description of the artifacts. Save the records for the next class period.
2. Have the groups appoint a student from each group as the sketcher of the artifacts. This person will be drawing the artifact in the site and what the artifact looks like. This information will be used in the next class period.
3. If the time does not allow for the full excavation of the site, stop the excavation when the first artifact is discovered. Continue the excavation during the next class period.

Grid Activity

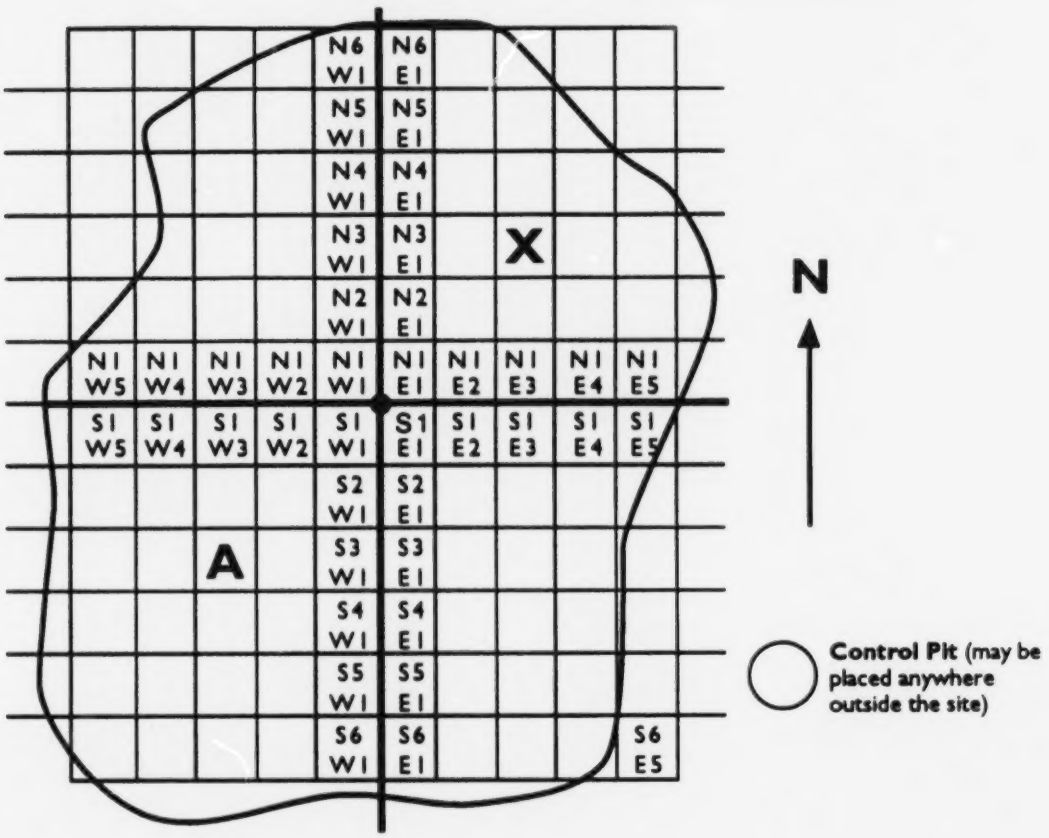


1. Construct a grid using 1 cm squares.
2. Label the grids on each side of both axis lines.
3. Draw a circle where a control pit might be placed. Label it.
4. Three pot fragments were found in S3-W3. Put an **A** in that square.
5. Below is a list of grid squares. Put an **I** beside those that are in the site. Put an **O** beside those that are not in the site.

S4-E3 _____	N3-W4 _____
N6-E4 _____	S6-E5 _____
S2-E3 _____	N4-W3 _____

6. Many pieces of burned wood and bones were found in grid square N2-E3. Put an **X** in this grid square.

Grid activity (Teacher's copy)



1. Construct a grid using 1 cm squares.
2. Label the grids on each side of both axis lines.
3. Draw a circle where a control pit might be placed. Label it.
4. Three pot fragments were found in S3-W3. Put an **A** in that square.
5. Below is a list of grid squares. Put an **I** beside those that are in the site. Put an **O** beside those that are not in the site.

S4-E3	I	N3-W4	I
N6-E4	O	S6-E5	O
S2-E3	I	N4-W3	I

6. Many pieces of burned wood and bones were found in grid square N2-E3. Put an **X** in this grid square.
7. Answers to grid questions of 1 cm being practical to use: no, it is too small to work in. A good size would be 1:10 or measuring site in sizes of 3'x3', 5'x5', or 10'x10'.

Lesson 5

Describe the tasks of the archaeologist.
Recall archaeological terms and techniques used in the collection of materials.

Note to the teacher

The collection of materials begins when the first artifact or material is discovered. All excavation of that square is stopped so the ***sketches, measurements, and photographs*** can be performed on the site and artifact. The archaeologist very carefully removes the dirt from around the artifact. Some artifacts will need to be ***protected*** from drying out to fast — wood can shrink or bow while drying; glass can shatter when the surrounding temperature changes rapidly. Some artifacts will need ***support*** before trying to move the artifact from the site. This support may be ***plaster of Paris***. The artifact will need protection from the support material by dampening the artifact and then using foil or plastic wrap before adding the plaster to the site. The plaster is allowed to dry before the artifact can be moved. Artifacts with ***rust*** are ***treated*** in order to stop the damage. Artifacts with ***mold***, or affected by molds, are treated to halt the damage. These ***pretreatments*** are included in the records of each artifact and is used as reference in the ***find laboratory*** when the artifact is ***cleaned, aged, tested, and preserved***. Artifacts are carefully ***packed*** using ***padding*** to help prevent breakage from occurring during ***transportation*** to the find laboratory; the artifacts are ***labeled*** and placed in to the ***container*** bearing the duplicate label of the artifact.

After the artifacts are tested, they are preserved until the archaeologist is ready to ***recreate the site*** (for displays) and ***interpretation*** (description) of the site and its history. Some artifacts will be transported to the main laboratory for further studies.

The activity is designed to promote understanding of the ***underlined*** terms for the students regarding the collection of materials; the need for good records of the provenience of the artifacts, description of the artifact, and the care given to each artifact.

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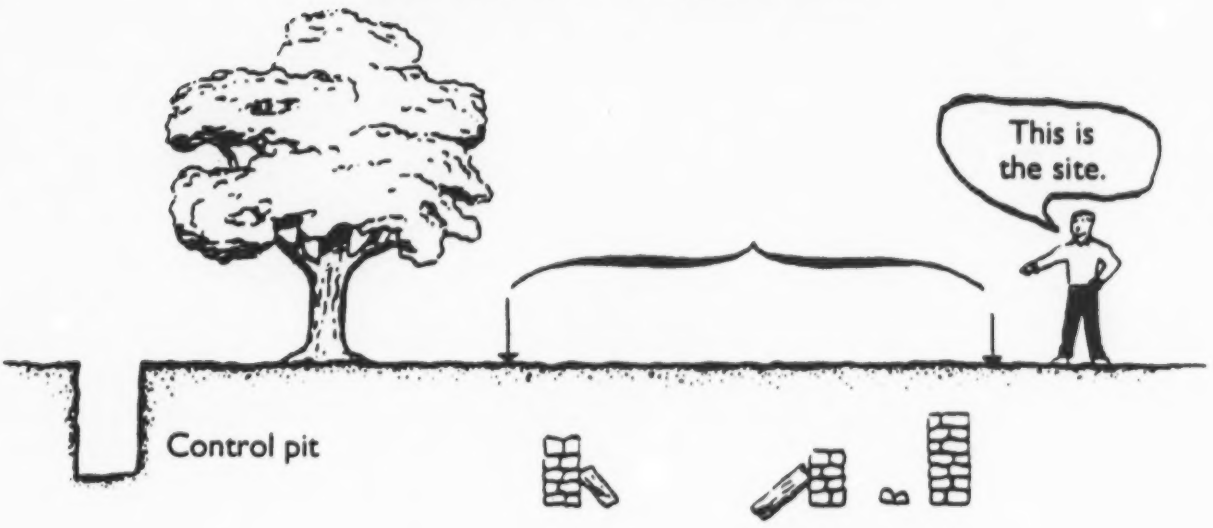
Activity

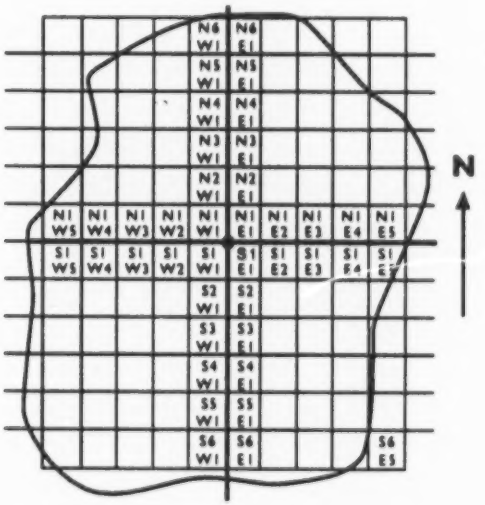
Materials: ***Student discussion sheet, Collection of Materials*** *(p. 21)*
Records and artifacts from previous activity
Paper, pencils, and rulers (inch or cm)
Tissue paper, paper towels, padding

1. Duplicate the student discussion sheet, "**Collection of Materials**", and distribute to the students.
2. Have students get in to the same groups as in the previous activity. Reporters should be the same members and have the data (information) with them from the previous activity.
3. Using the data from the previous activity; starting where the excavation was halted; or have the students start a new excavation using a different excavation technique.
4. Have students remove the artifact from the site; label the artifact; pack the artifact with tissue; place in the container; and transport the artifact to the group's table.
5. Have students describe the artifacts found in their site; record their ideas of the artifacts; and try to recreate the site from the sketches. Have the group report the findings and ideas to the other students in the class. Do the students agree? Why or Why not?
6. Ask students which method of excavation is easier while excavating a site; which is harder?

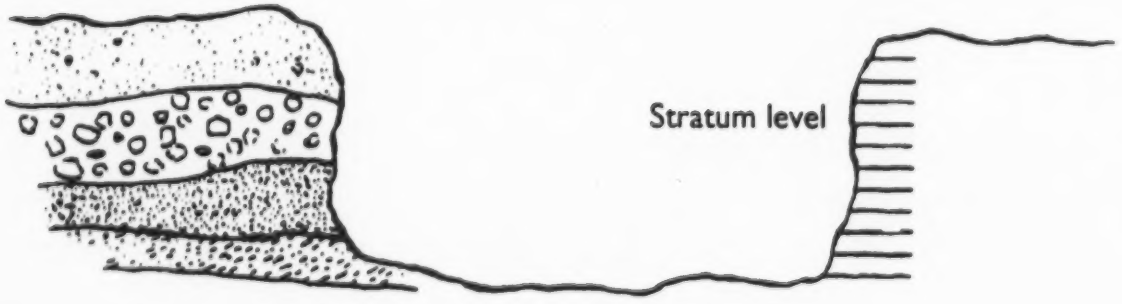
Collection of materials



Construct a grid



Vertical depth



Lesson 6

Describe the tasks of archaeologist.
Recall archaeological terms and techniques used for the description of materials.

Note to the teacher

Once the archaeologist has found material at a site, the material is described. This description will aid in the explanation of the material, and includes such information as what the material looks like, where it was found, and how old it is. Archaeologists have available both relative and absolute dating techniques to determine the age of materials. ***Relative dating techniques*** show how materials are older or newer in relation toeach other. These techniques include ***stratigraphy*** and ***seriation*** (see number 4 in the activity below, and student discussion sheet, **"Relative Dating Techniques"**, for additional details). ***Absolute dating techniques*** indicate a date or time range of materials. These techniques include ***radiocarbon dating*** and ***dendrochronology***. (Additional information on these dating techniques may be found on the student discussion sheet, **"Absolute Dating Techniques"**, in this manual, and in the activity below, number 6.)

This activity is designed to introduce the underlined terms to students, and to assist them in the recall of archaeological techniques used to describe materials.

Activity

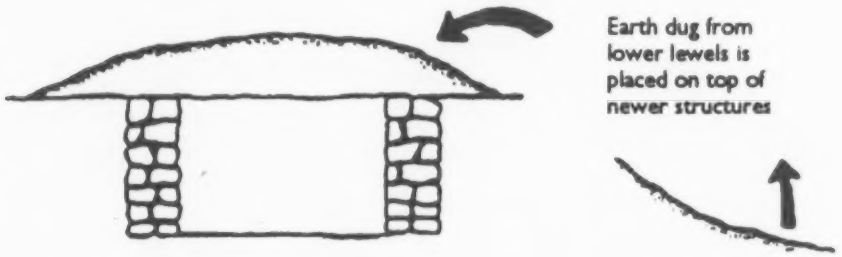
Materials

Student discussion sheet, ~~***Description of What is Found***~~ *(p. 25)* Describing Archaeologists Findings
Student discussion sheet, ***Relative Dating Techniques*** *(p. 26)*
Student discussion sheet, ***Absolute Dating Techniques*** *(p. 27)*

1. Tell the students that materials have been at a site. Ask them what kinds of things they might be able to describe about these materials. What types of description might be obvious? What types of descriptions might be more difficult to determine?
2. Duplicate and distribute student discussion sheet **"Description of What is Found"**. Review with students the questions which it addresses. Ask students why accurate descriptions might be important to archaeologists.
3. Ask students how they might be able to tell how old materials are. Discuss their suggestions.
4. Duplicate and distribute student discussion sheet **"Relative Dating Techniques"**.

Review the term relative dating techniques which show how materials are older or newer in relation to each other. Introduce the two types of relative dating techniques discussed. Point out that what appears to be the case might not always be so.

Stratigraphy — It is important to note that there are definite exceptions to this approach. Sometimes older material has been placed over newer material. For example, some cultures built homes or burial mounds into the ground and covered them with earth from the surrounding area.



In this case older material may appear above newer material when the site is excavated by archaeologists. A simple application of stratigraphy would misrepresent the relative age or significance of this material. The archaeologist must be aware of such possible discrepancies and always consider the possibility that thisis the case.

Seriation — It is possible that all elements of a series might not be known. It is also possible that seriation might be different from one part of a culture to another. Such possibilities must always be considered by the archaeologist.

5. Ask students to think of their own community. What might they expect to find in the area around their homes from today's culture; from 10 years ago; from earlier times? Would the areas of land be undisturbed? What factors might have made changes in the application of stratigraphy? Ask students to think of a series of things which they use that have changed over time. Can they arrange them in order of their age?

6. Distribute student discussion sheet, **"Absolute Dating Techniques"**. Review the term "absolute dating technique" as a technique which indicates a date or time range of materials.

Radiocarbon dating — This technique can test things which were once living. Living things possess a known level of carbon-14. When a living organism dies, its carbon-14 begins to decay. This decay occurs at a constant rate. It takes 5730 years for the amount of carbon-14 to drop to half of its former level. This is known as its half-life. In another 5730 years it will have dropped to one-fourth of its former level, and so on. This method is accurate to about 50,000 years ago, although dates are generally given with some latitude, plus or minus 200 years.

Dendrochronology — This dating technique used the annual growth of a tree's rings to date wood. This generally has been applied only in the American southwest, but there it has been done with considerable accuracy.

Enrichment

Students may wish to construct hypothetical "How Old Is It?" situations for their classmates' application of dating techniques. For example, they may design a tree ring line and some sample trees. Can their classmates date them? They may show a cross-cut view of a site with materials found at different levels. Which is oldest, etc.? Using radiocarbon dating, give the age of an item that has 1/8 of its former level of carbon-14; 1/16; 1/32; etc. Design a series of items in order from oldest to newest. Design similar items to be placed within the series. Have students ask their classmates which are older and which are newer.

Describing archaeological findings

What does it look like?

Color

Shape

Material

Size

Where was it found?

Name and location of the site

Grid location

Vertical depth or layer

How old is it?

Relative dating techniques

Stratigraphy

Seriation

Absolute dating techniques

Radiocarbon dating

Dendrochronology

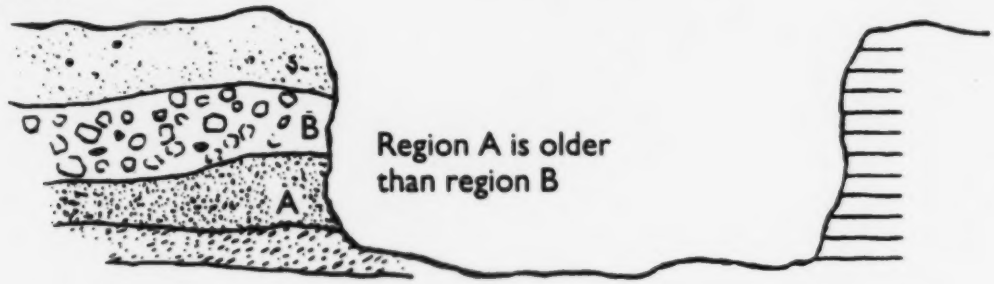
Relative dating techniques

How old is it?

Relative dating techniques show how materials are older or newer in relation to each other.

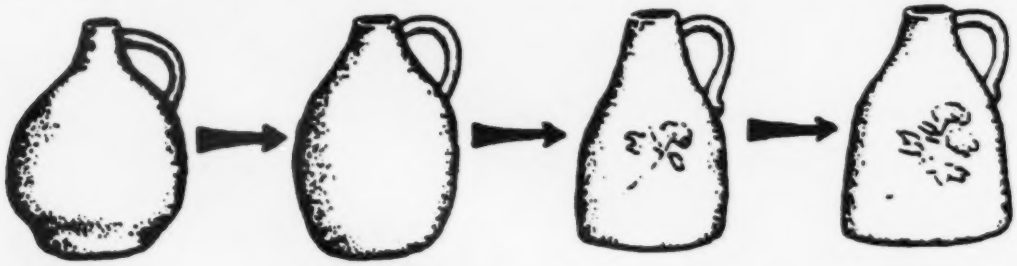
Stratigraphy

Material found in a deep layer of a site is older than material found in a shallow layer of the same site.



Seriation

An inception, a rise in popularity, and a decrease in popularity to extinction, and frequencies of artifacts over time will exhibit a **"battleship curve"** or a **bell curve.** Works best if a date somewhere along the curve is known. Styles changed in the past, just as styles change now. If a series of styles is known, an artifact can be placed within this series to determine its relative age.



Style A: older than B, C, or D

Style B: newer than A, but older than C and D

Style C: newer than A and B, but older than D

Style D: newer than A, B, and C

Absolute dating techniques

How old is it?

Absolute dating techniques indicate a date or time range of the materials. Examples of absolute dates are dates placed on the artifact by the manufacturer or marks placed on the artifact which are specific, datable characteristics of the manufacturer.

Radiocarbon dating

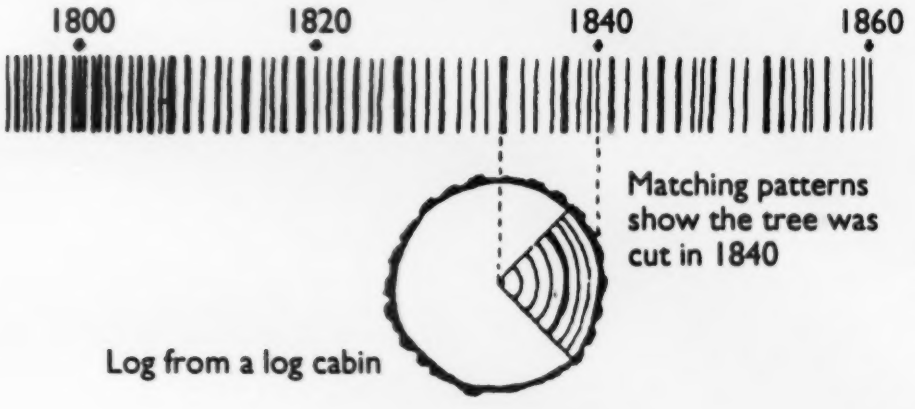
Tests of carbon-14 in any previously living material can provide fairly accurate dates of origin to as long ago as 50,000 years ago.

Bone

Wood

Dendrochronology

Archaeologists can determine the age of wood by matching the patterns of its rings to a known and dated pattern of rings.



Lesson 7

Describe the tasks of an archaeologist.
Recall archaeological terms and techniques used in the explanation of materials.

Note to the teacher

All human-made materials are reflections of the thoughts and behavior of the people who made them. The explanation of materials is based on ***inferences***, or informed guesses based on the evidence, drawn from the patterns of materials available to the archaeologist. Such inferences give clues to the nature of cultures.

This lesson examines three types of inferences which archaeologists use to explain the materials from a site. These inferences are related to ***context***, ***function***, and ***behavior***.

Examples

A. An arrowhead found by itself reveals little about its culture other than the technology of the manufacturer. It was probably used for hunting, but beyond that not much is indicated. An arrowhead found in the context of many other arrowheads, spear points, and knives suggests a hunting culture. Further finds of a large number of animal bones is additional evidence that the culture was hunting oriented. A lack of clues to permanent housing may support this inference, for hunting cultures tend to be nomadic. The context of materials is useful for determining the function of materials and the behavior of those who used and made them. Changes in materials found for hunting could indicate the use of the site by different groups, or it could indicate developmental changes by the same group over time. Similar finds in other sites might indicate the range of the particular cultural group.

B. A site with some charred grains might indicate food preparation. A site with charred grains, pottery, agricultural tools, and remains of permanent housing suggests much more. In this context, the function of the grains was most likely for food, and the behavior of the culture was quite probably farming oriented. Changes in pottery, tools, grains, or housing on the site could reveal much about the developmental behavior of the culture which produced the materials.

The patterns formed by the artifacts provide information about the culture and how they used the site. These patterns of relationships are called ***associations*** by archaeologists. Such associations are the foundation of archaeological inferences and of the explanations of materials found at a site.

This activity is designed to introduce the underlined terms to students, and to assist them in the recall of archaeological terms and techniques used to explain materials.

Activity

Materials: *Student discussion sheet,* ***Explanation of Materials*** *(p. 31)*

1. Tell the students that a piece of pottery was found by itself in a site. What can they determine about a culture from this evidence? Discuss their ideas.
2. Introduce other materials into the discussion that were found at the same site, one item at a time. Materials from the second example above may be useful. As each material is introduced, more and more speculation is possible. Develop the idea that each new material added is similar to additional clues for the solving of a mystery.
3. Duplicate and distribute student discussion sheet **"Explanation of Materials"**. Introduce the italicized terms and relate them to the classroom discussion. Point out how important the careful excavation and recording of location is to determining the context of materials.
4. Ask students to suggest other clues which might be found at a site. Discuss what their clues might tell an archaeologist. Have other students suggest other clues. Develop inferences about their imaginary culture based on these clues.

Explanation of materials

Inferences Drawn From Pattern Associations

Context

Relationship with other materials at a site

Relationship with other sites

Relationship with stratigraphic layers and features of a site

Functions

Subsistence

Ritual/religion

Welfare

Transportation

Housing

Trade and social networks

Behavior

Grouph and cultural associations

Range and development of culture

Socialization

Lesson 8

Recall archaeological terms and techniques.

Note to the teacher

This activity is designed to provide the teacher with an idea of student progress in the archaeology unit. The terms and concepts used in the remainder of the unit are based on the information and experiences provided in lessons 1-7. The teacher will wish to confirm this progress before the concepts of the unit are extended in further lessons. Either Activity I or Activity II may be used, based on teacher analysis of student needs. The teacher may wish to use Activity I with some students, and Activity II with others.

Activity I

Materials: *Student activity sheet,* ***Archaeology Crossword Puzzle*** *(p. 34)*

1. Duplicate and distribute student activity sheet "Archaeology Crossword Puzzle." This activity may be done individually or in small groups. Allow students time to complete the puzzle.
2. Review the crossword puzzle with students. Discuss those terms or concepts which appear to be in need of clarification.

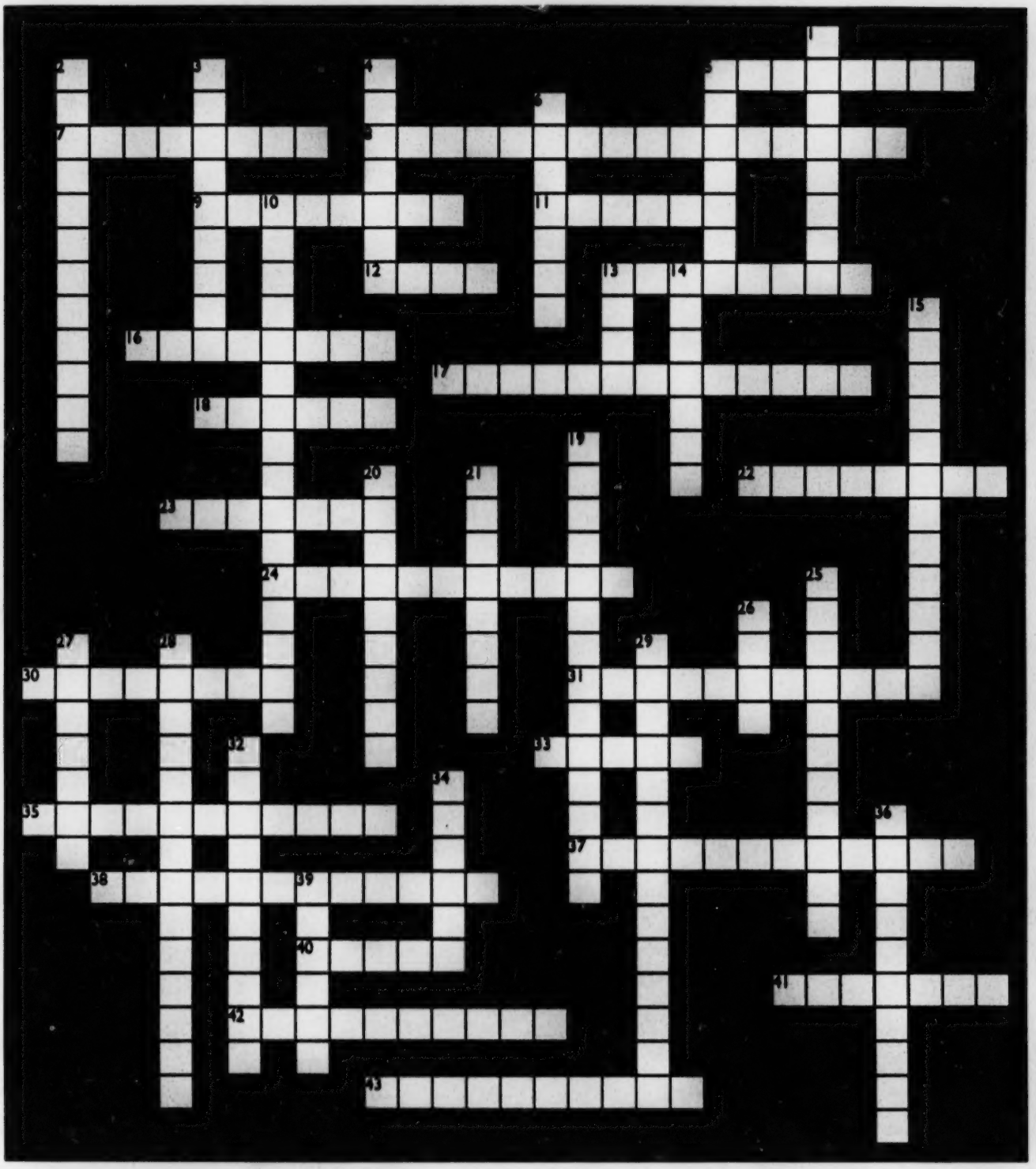
Activity II

Materials: *Word Bank (p. 35)*

Paper and pencils

1. Ask students to think of the terms and concepts of lessons 1-7. Discuss those which students request to extend or clarify.
2. Have students make their own crossword puzzles using the terms and concepts represented in the word bank. This may be done individually or in small groups.
3. Students may work each other's crossword puzzles or present them to the class. Butcher paper may be used to make large displays for the classroom. This display might prove useful for further reference or review.

Archaeology crossword puzzle



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Word bank

absolute
aged
archaeologist
archaeology
artifacts
associations
behavior
brushes
buckets
carbon 14
careful
cleaned
collect
context
containers
contour drawing
control pit
culture
datum point
dendrochronolgy
dental tools
describe
explain
feature
find laboratory
function
grid
half-life
half-sectioning
horizontal
inferences
intrepretation
labels
locate
measurements
masonry tools
mold
natural materials
narrow trench
padding
paper
pegs
picks
preserve
pretreatment
provenience
radiocarbon
recreate
relative
report forms
rings
rulers
scale
seriation
site
sketches
strata
stratigraphy
string
test
vertical
vertical face
wooden stakes

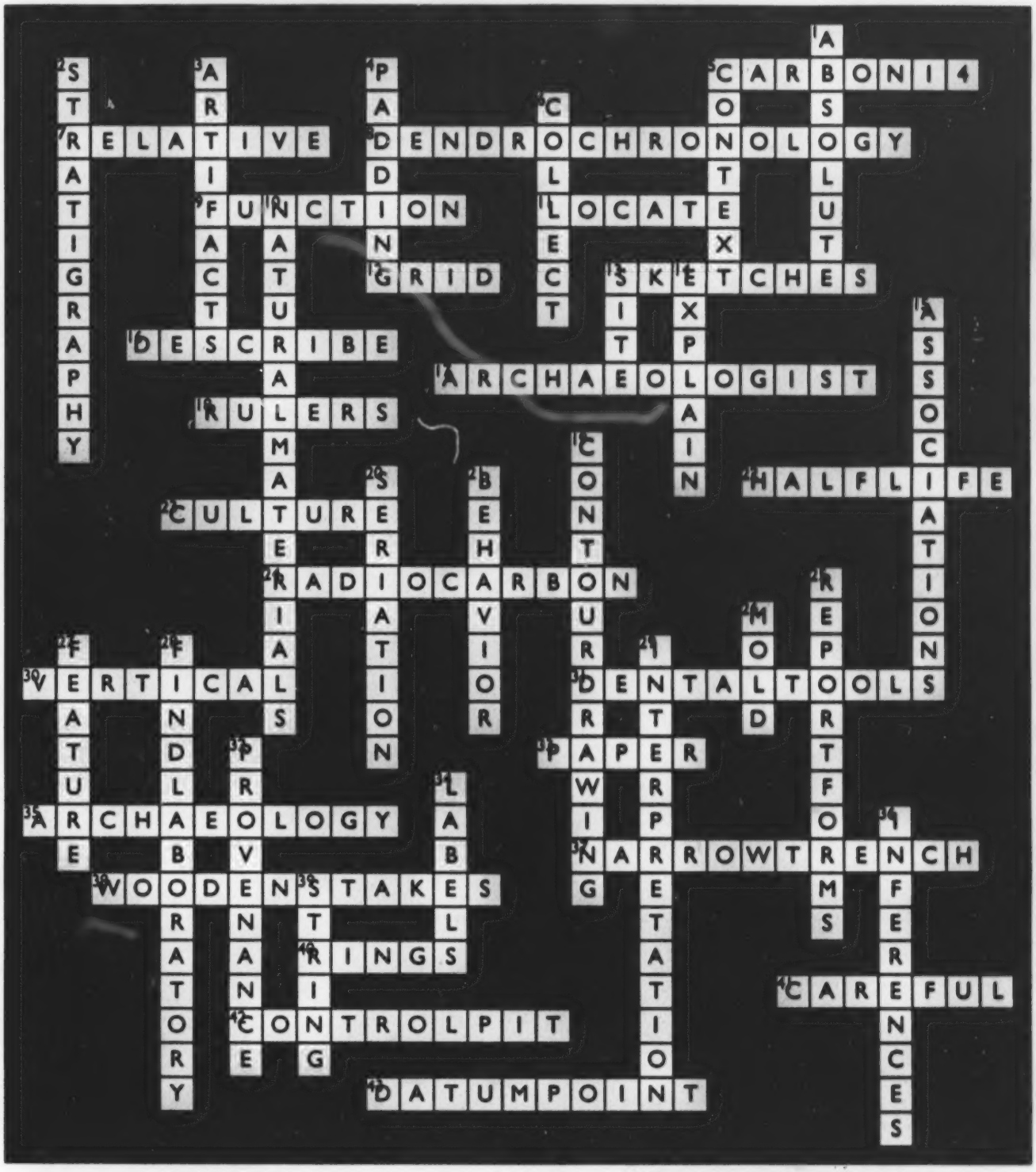
Across

3. The study of past human life and activities through material objects.
5. Measured for in radiocarbon dating.
7. _____ dating techniques show how materials are older or newer in relation to each other.
8. Tree rings are matched to a known and dated pattern of tree rings to determine the age of a tree.
9. Artifacts can serve in the _____ of food, religion, warfare, etc.
11. The first task of an archaeologist is to _____ a site.
13. These help the archaeologist to recreate an archeoleogical site after study.
12. A system of squares laid out on a site and used as a guide to the location of excavated materials.
16. After collecting materials from a site, the archaeologist needs to _____ them.
17. A person who studies about past human life and activities from the remains of those cultures.
18. These are used to measure artifacts.
22. 5730 years is the _____ of carbon-14.
23. A system of habits and customs acquired by people and held by that society.
24. _____dating can determine the age of once-living materials up to 50,000 years old.
30. It is important to know the _____ depth and horizontal measurement of materials found at a site in order to make correct inferences about them.
31. These assist the archaeologist with excavation.
33. Without this archaeologists could not keep accurate records.
37. A form of excavation used for walls or as a control site.
38. This is used to mark artifacts or the corners of a site.
40. Tree _____ are used to determine the age of trees.
41. In order to know the context of materials found at a site, archaeologist must be _____ when excavating those materials.
42. Before digging at a site, a _____ is dug outside the site to determine the nature of the soil and deposits.
43. This is another name for the center of the grid.

Down

1. _____ dating techniques determine a date or time range of materials.
2. _____ tells us that older materials may be found deeper in a site than newer materials.
3. Human-made objects found at an archaeological site.
4. This protects artifacts from damage during transportation.
5. An artifact's relationship with other materials and with stratigraphy.
6. After archaeologists locate a site, they must then _____ the materials they find.
10. Natural objects found at a site and probably used by humans.
13. The place where archaeologists excavate for materials.
15. The patterns of relationships between materials.
14. After materials have been analyzed, archaeologists _____ who made them, who used them, and why and how they were used.
19. Shows the present condition of and lay of the land.
20. A dating technique in which an artifact can be placed in to a known series of objects to determine its relative age.
21. Archaeologists try to determine the cultural _____ of groups by learning the context and function of materials.
25. These are filled out for each site and artifact.
26. This can damage artifacts, caused by water or humidity.
27. A culturally produced artifact that cannot be removed from the site.
28. This is where artifacts are taken for cleaning and storing.
29. This is done after the site has been recreated.
32. This is the horizontal and vertical location on the grid.
34. This is used for identification both at the site and recreating the site.
36. Guesses based on available evidence are called _____.
39. This is used to lay the boundaries of a site.

Archaeology crossword—teacher's copy



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Lesson 9

Recognize the different land use stages at Walney.
Distinguish the types of artifacts or features which might represent each stage of land use at Walney.

Note to the teacher

This lesson is designed to introduce the Walney site to students, and to develop a foundation for further archaeological experiences. The teacher should read the information sheets, **"Land Use Summaries"**. These summaries will be used by students to familiarize themselves with the people who lived at Walney, and the changes that took place there over time. With this background, students will apply a range of higher level cognitive skills to archaeological problem situations.

Activity

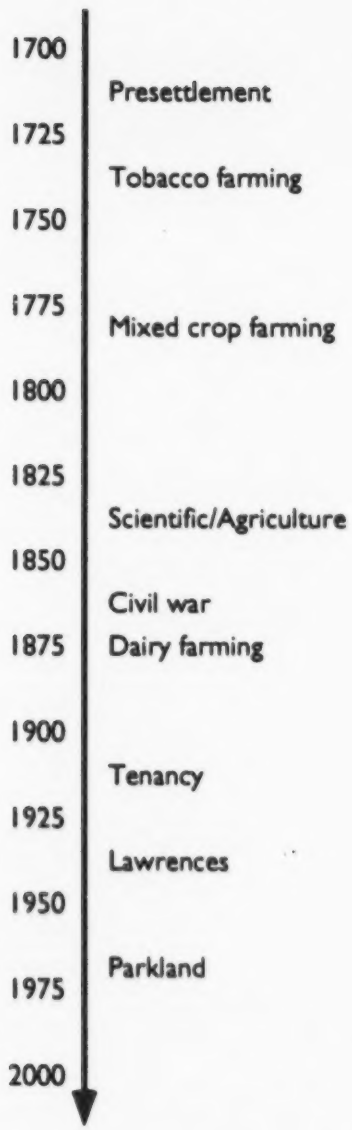
Materials: *Student activity sheet,* ***Walney Timeline*** *(p. 41)*
Student activity sheets, ***Land Use Summaries*** *(p. 42)*
Student activity sheet, ***Land Use and Artifacts Record Sheet*** *(p. 54)*

1. Have students brainstorm a list of places where archaeology has taken place. Explain to students that archaeology is not something that is done only in far-off countries or sites. Fairfax County has many archaeological sites, and a staff of archaeologists. One of these sites is Walney.
2. Duplicate and distribute the student activity sheet **"Walney Timeline"**. Point out the land use periods and the family names associated with them. This may be done on the chalkboard, overhead, individual copies, butcher paper, or poster board. Other activities in this lesson will provide additional information to be placed on the timeline. Do not elaborate on land use at this time.
3. Divide the class into six groups. Assign each group to a period of land use. Duplicate and distribute student activity sheets **"Land Use Summaries"**, a different summary to each group. Give each group a copy of student activity sheet **"Land Use and Artifacts Record Sheet"**, Ask each group to select a recorder. Tell students they have several tasks. They are to read the land use summary and determine the following information:
   - Description of the land
   - How the land was used

- How people influenced the land
- What evidence of this time period an archaeologist might discover at Walney today

4. Allow students time to read the summaries, discuss them, and complete their record sheets. Visit each group and facilitate discussion when necessary.
5. When the groups have completed their record sheets, have each group present its findings. Summarize their findings and record them on the timeline.
6. As a total group, discuss these findings. Ask if members of other groups can contribute additional responses. Do students agree with the findings of each group? Why or why not?

Walney timeline



Presettlement and Tobacco Farming

In 1739, a man named Willoughby Newton bought 2500 acres of wilderness land in Northern Virginia. This land became part of Fairfax County, and later part of it would become a Fairfax County park. For hundreds of years before Newton bought this land it was a hunting area for local Indians. This period of time is called the presettlement period. There were no Indian settlements in the area. This land was wooded, and was used for hunting deer, turkey, and small game.

Willoughby Newton did not settle on this land. Like other wealthy Virginians, Newton bought the land as an investment. He did, however, want to have the land settled, since this would increase its value. He leased his land to farmers who were too poor to buy their own land. On March 1, 1742, Newton leased 150 acres of the land that later became Walney to Thomas and Elizabeth Brown and their oldest son Joseph. This was a "3 Lives Lease," which gave use of the land to them throughout their lifetimes. For the use of this land the Browns paid Newton a rent of 530 pounds of tobacco, to be paid each year on December 25. In addition, Brown was required to plant 200 apple trees on the property. At the end of the lease all buildings, land, and trees became Willoughby Newton's property again.

The Browns lived in a frontier society. They had to build a house and clear trees from areas where they wanted to grow crops. They raised garden crops for food, but tobacco was their main crop. Tobacco was popular in Europe, and frontier colonists often used it like money. Growing tobacco required a great deal of work with many precise steps and careful timing. By 1749, Brown had bought three slaves to help work the farm, and by 1760 he owned six slaves. The fact that he had money to purchase slaves shows that his tobacco farm was successful. In fact, he made enough money that in 1761 he bought 400 acres of land next to the land he leased from Willoughby Newton.

During this time Brown shipped as much as 6000 pounds of tobacco a year to England through the new port city of Alexandria. With the money he earned he built a house on his new property and bought clothes, furniture, and kitchen utensils. Most of these items were made in England, for such materials were rarely produced in the Colonies at this time. In 1773, Brown bought a carriage, a costly item, and in 1777, he purchased a second one. These carriages were used to visit neighbors, attend the nearby Frying Pan Baptist Church, and for business trips to Alexandria or Leesburg.

By the time of his death in 1792, Thomas Brown owned 14 slaves, and had risen from a tenant farmer, tilling Willoughby Newton's 150 wilderness acres, to a landowner with an estate of over 850 acres of his own. His prosperity was due mainly to his success with tobacco farming. However, tobacco plants quickly take nitrogen and vital minerals out of the soil. Years of tobacco farming had taken their toll on the land of Northern Virginia, and the crops were increasingly poor. So, farms had to start growing other crops instead of tobacco.

Mixed Crop Farming

When Thomas Brown's son, Coleman Brown, inherited much of his father's estate in 1793, the farm was growing no tobacco at all. The tobacco economy on which Thomas Brown had built his wealth was gone forever. Coleman Brown grew wheat, corn, and rye on his farm, and raised cattle, sheep, and hogs. The Northern Virginia Piedmont, which includes Fairfax County, was a fine wheat-growing region. George Washington began to grow more wheat and less tobacco as early as 1763. The growth of Alexandria as a major shipping center for grains and flours encouraged farmers to produce these crops. Coleman Brown also grew garden crops to supply his family and slaves with food.

Coleman Brown had acquired his own land near his father's in 1774. In the same year he purchased or was given two of his father's slaves. In 1780, he built a small stone house on his land. By1782, he paid taxes on six male slaves. By 1810, he owned 14 slaves: eight male workers, four women, an old man, and a young girl. Although Brown managed the farm with the help of an overseer, his slaves did most of the work. White farmers of the area generally accepted the slave labor system, and the laws allowed slavery.

Slavery was an issue throughout the area, however, and historical records indicate that it did not have the full support of the community. Meetings were held at Frying Pan Baptist Church, beginning in 1797, which were attended by Coleman Brown. There a plan was prepared for the gradual freeing of slaves. By 1800, however, the plan had been dropped. Church members felt that the slavery issue, while important, should be decided by the legislature rather than the churches. In 1801, the church granted membership to slaves who wanted to attend, and church records indicate that some slaves worshipped there with their masters. Others in the neighborhood who opposed slavery included Quakers who had moved to Northern Virginia from Pennsylvania. Despite this opposition to slavery, the life of a slave remained difficult.

Coleman Brown continued to add more acres to his farm, and he bought several lots in the small town of Centreville one mile away. By 1819, his estate included 760 acres of land. When he died in early 1830, he left his land and slaves to his wife. Coleman Brown had a prosperous life as a grain and livestock farmer on his Fairfax County farm, just as his father had been successful as a tobacco farmer on much of the same land. Brown's wife Elizabeth continued to live there while her son-in-law managed the farm. She died 10 years later, and the farm became the property of her nine grandchildren.

The land that had belonged to the Brown family for almost 100 years now changed hands. Few of the grandchildren showed an interest in the land. Some were married with farms of their own. Others had moved west to the new frontier lands of Tennessee and Kentucky. In 1843, 725 acres of land was sold to Lewis Machen, a cousin from Maryland, for $15 per acre. The farm, which had never been named by the Browns, was given the name "Walney" by the Machens after a small island near the coast of England where the Machen's ancestors had once lived. The name also reflected the large black walnut trees that surrounded the house.

Scientific Management

Lewis Machen was 53 years old when he purchased the farm in 1843. An intelligent man who loved education and books, he had served as clerk of the United States Senate in Washington D. C. since the early 1800's. This job kept him almost a day's journey away in Washington much of the time, and the day-to-day operation of the farm was often left to his wife Caroline, and sons Arthur and James. Lewis Machen had a keen interest in the farm, however, and wrote frequent letters to his family about its operation. Arthur helped with Walney until he entered Harvard Law School in 1849. James, the younger son, continued to run the farm until his death more than 70 years later.

The 1840's and 1850's were times of progress in scientific farming in Virginia, and Lewis Machen experimented with soil improvement, fertilization, crop rotation, and selective seed techniques. He kept strict accounts of labor use, money, seed types, and fertilization methods to use the farm's resources in the most profitable way. He kept well informed of the latest theories of agricultural research. Guano from Peru and manure from the farm animals were spread on the fields. Wet areas were drained by digging ditches. Other areas were improved by "deep plowing," a method which turned up unspoiled earth to replace the wornout topsoil. The Machens used a 5 year crop rotation scheme: oats and corn; fallow fields; barley and wheat; hay; and pasture. By the end of 5 years these efforts were beginning to pay off, and Walney was more prosperous than other farms in the area.

In 1843, when the Machens bought Walney, they owned no slaves. Farm labor was done by hired free workers, mostly Irish immigrants. By 1846, however, they had changed over to hired slaves for the farm labor, with an overseer to manage their day-to-day work. Many large plantations with slaves had reduced their farming output, and the system of hiring slaves by the year or month from these plantations with an excess of slave workers had become a common practice in Fairfax County by the mid 1840's. This system saved the Machens the expense of purchasing a number of slaves to meet the requirements of the farm. It also gave them a labor force over which they had increased control. A few whites, along with several free blacks, were still hired during periods of heavy work such as harvesting and butchering. In Fairfax County the typical hiring term of a slave was 51 weeks. Historical records indicate that slaves had the week between Christmas and New Year's as a holiday. The remainder of the year the slave faced a 6 day work week from dawn to dusk, and a wide variety of tasks.

Walney continued to thrive under the direction of the Machens, and the scientific management of their farm proved to be a profitable approach. A new frame house for James was completed in 1852. Additional outbuildings were added, including an ice house. In 1853, fifty peach trees were planted. James' reputation as an industrious farmer gained him the respect of his neighbors and friends. In 1858, he was appointed County Surveyor. In 1859 Lewis Machen retired from his work as clerk of the Senate after almost 50 years in that position, and he came home to Walney to live on a full-time basis. His health, however, was not good and he was able to do little to help James run the farm.

Civil War

By 1860, the health of the nation was not good. This had a direct affect on Walney and the lives of all its people, both free and slave. In November of that year Abraham Lincoln was elected President of the United States. In December, South Carolina left the Union. By the Spring of 1861, Virginia had voted to leave the Union as well, and federal troops poured into Virginia. The American Civil War had begun.

The Machen family lived at Walney, and at first they believed they were far enough away from Washington to remain in safety. The war, however, moved quickly toward them. In June, skirmishes were fought at Fairfax Courthouse and Vienna. Hundreds, and then thousands of troops, marched into Centreville, only a mile from the Machen's home. The Machens realized that a major conflict was possible. Soon the fields of Walney contained a number of Confederate military encampments, and officers such as J.E.B. Stuart and Stonewall Jackson were visitors of the Machens. James Machen joined a Virginia cavalry unit. On July, 20, 1861, word reached Walney that large numbers of Northern troops were moving toward Centreville. James Machen was sent to warn Gen. Beauregard, who was stationed with his troops several miles away near Manassas.

The battle at Manassas which took place the following day could be clearly heard at Walney, and the smoke from artillery filled the air. Suddenly, the road past the house was crowded with retreating Union soldiers and panicked civilians who had come to watch the battle. Three Confederate hospitals were quickly set up at Walney to aid the frightened and wounded men who were crying for medical attention. Much of the property became a camp for Confederate troops. During the autumn and winter almost 40,000 troops remained in and near Centreville. Some camped on the Walney property. The summer's crops had been lost and almost all of the fine old trees had been cut by the army for firewood and construction of winter headquarters and defenses. The countryside was bare.

The Confederate troops left the Walney area in March of 1862 and headed south to defend Richmond. The defense of Walney was left to the Machen women. This was the case at many plantations in the area, including nearby Sully and Chantilly. The Machen women were determined to remain on their land, despite incidents in which federal troops stole their property and shot their farm animals before their eyes. As the planting season approached, however, the Machens and their neighbors were unable to prepare or plant most of their fields. With the Union troops close by, most slaves had escaped to freedom. By August 1862, they were left with no labor at Walney at all. Still, they were out of the major battle now, and this was a relief to them. Their relief did not last long.

On August 31, 1862, the two armies again fought a ferocious battle near Manassas. The results were a disaster for both the Union army and for Walney. The farm, directly in the path of the retreating Northern army, suffered severely. A house built for James Machen in 1852, was burned to the ground, and the main house was robbed of all its contents. All the farm animals were taken or killed, and the Machen's food and supplies for the

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entire year were quickly passed out among the troops. For four days the family was terrorized. Confederate troops advanced on the Union army, and parts of the Battle of Chantilly were fought on the Walney property. Cavalry charged across their land. Dead men were left in their fields for weeks, adding disease to the dangers the Machens faced.

The Machen women could no longer stay at Walney. In November they left and moved to Baltimore, staying with relatives. The farm was abandoned, and the fields became overgrown. Most of the trees on the land had been destroyed, and erosion washed much of the soil into nearby streams.

Dairy Farming

James Machen returned to Walney after the surrender of Robert E. Lee in 1865, but the Machen women never returned to live there on a permanent basis. Despite the horror of the war, James found the main frame house and small stone house still standing, and he was determined to rebuild the farm. This was a difficult task. Labor was unavailable or very expensive. Farm animals, equipment, and seed was gone. The fields, once carefully tended, were eroded and overgrown. With the financial help of his brother in Baltimore, however, James did plant some crops on a small part of his land, although much remained untended. James married in 1866, and with the help of his wife and the few farmhands he could hire, he slowly rebuilt farm house and buildings, and worked some of its fields.

By 1870, however, the character of Walney changed. James had chosen to direct the farm toward dairy farming. They began to market butter and milk to neighbors, and eventually shipped milk by wagon to the larger Washington market. Many of the fields of Walney were turned into pastureland. In 1873, James became a charter member of the Piedmont Milk and Produce Association, an early farmers' group which promoted the use of Fairfax County land for dairying and favored improved transportion systems in the area. At this time Machen reported that he had 35 cows and was averaging about 125 gallons of milk from them each month. Dairy farming had distinct advantages over crop farming. Less land and hired help were required, and dairying provided a regular source of income rather than an income once each year when crops were sold. By 1879, Walney produced over $2300 in dairy products, including 3000 pounds of butter.

Much of the peacefulness and some of the prosperity had returned to Walney after the war as the farm was rebuilt and began to support the Machens. In 1875, however, the main frame house in which the family lived was destroyed by fire, and all their possessions were lost. The family moved to the small stone house nearby which had been built by Coleman Brown in 1780. James enlarged the house the same year, and placed a time capsule in one wall of the addition. The time capsule contained information about the house, the family, and some personal items from the time period.

Dairying continued to be the major focus at Walney through the 1880's, but by 1890, a major change had taken place on the farm. For reasons which are unknown, James Machen again was concentrating on growing grain crops, especially corn and oats. This was tragedy for economic success at Walney. During this time cheap grain crops became readily available from the midwest, and eastern grain prices were very low. It was a period of depression for Fairfax County farmers. James Machen had chosen a bad time to change his farming operations, and Walney became less and less profitable.

Tenancy, Lawrences, and Parkland

As Walney became less profitable, James Machen was forced to lease parts of his farm, and later even parts of his home, to tenants in order to support himself. In his last years he lived alone in a lower room of the old stone house, and at times he did not live at Walney at all. He died in a hospital in Washington in 1913, and was buried in Centreville. Walney had suffered from neglect, and its fields became overrun with cedars and brush. The orchards were not tended, and fences were collapsing from disrepair. The estate was held by a number of Machen relatives who, while wishing to sell it, were unable to do so.

Walney continued to sit idle and deteriorate as a farm. Finally, in 1935, a woman from Washington saw Walney and recognized its potential as a summer retreat in the country. In July of that year Ellanor Lawrence bought the 678 acre estate for $16,500. Mrs. Lawrence was the wife of David Lawrence, a founder of the weekly magazine *U.S. News and World Report*. The Lawrences later moved into the old stone mill house located on the property near Rocky Run.

The Lawrences were proud of their country home, and entertained there often. Visitors included President and Mrs. Franklin Roosevelt. Ellanor Lawrence loved the woods which had grown up on the fields of Walney, and welcomed them as a retreat from the hustle and heat of the city. She encouraged the wildlife of the area and planted hundreds of wildflowers and shrubs from all over the world throughout the property. Stones from many old foundations were used for decorative walls and small buildings.

The Lawrences became involved in local civic organizations and contributed much to the Centreville community and to Fairfax County. Mrs. Lawrence was concerned that the land should remain unspoiled. When she died in 1969, she left the land to her husband with the stipulation that it go to the public upon his death. In 1970, David Lawrence informed Fairfax County that this land, by now valued at nearly $5 million, would go to the County as a park. In 1971, the land became a permanent part of the Fairfax County park system.

In May, 1982, the Ellanor C. Lawrence Park was dedicated with many friends and dignitaries present. The park contains a visitors center in the old stone house built in 1780 by Coleman Brown, an amphitheater, nature trails, a classroom, and archaeological sites. In addition, there are recreation and primitive camping sites. The park will protect the natural state of the land as Mrs. Lawrence desired, but it will also tell the larger story of the land and its people.

Land use and artifact record sheet

Group _____

Time Period _____

Major People _____

Description of the land:

How the land was used:

How people influenced the land:

How the land influenced the lives of the people:

What evidence of this time period might an archaeologist discover at Walney today?

Lesson 10

Recognize the Walney face.

Brainstorm with others and hypothesize why someone created the Walney face.

Recall two theories about the origin of the Walney face.

Classify Walney face clues into pro and con Afro- and funeral-origins, and those which are compatible with both theories.

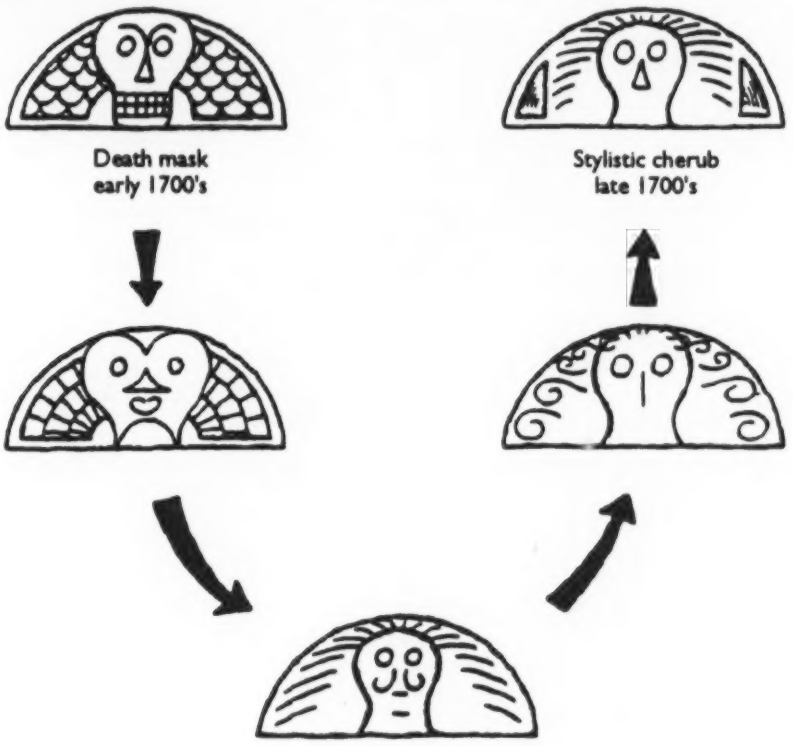
Note to the teacher

The Walney face is a carved stone head which was found quite by chance during the renovation of a house built at Walney in 1780 by Coleman Brown. The face had served as a keystone over a doorway in the original building, and was concealed by an addition to the building in 1875. The face is made of a type of sandstone which is available on the property. Its existence was unknown until 1981, when the Fairfax County Park Authority was preparing the site to become the park's interpretive center. There are no records concerning the origin of the stone face, but several theories have been proposed by archaeologists and academicians.

Afro-origin: Some who see the face believe that it represents the work of a slave stone carver, and that its features reflect an African-based art form. The use of local stone suggests that the face was made on the property, and labor force to support this theory was available. There were as many as a dozen slaves at Walney in 1780, and many more lived and worked on surrounding plantations.

Funeral origin: Others who see the face believe that its origin was that of a grave marker. Tombstones which date from this period frequently had faces on them, and a series of tombstones in New England and the mid-Atlantic states reflect this fact. Early tombstones had a death mask on them. Over time this evolved to the face of a cherub with clearly defined changes in mouth, hair, and teeth forms throughout the series.

Example of Tombstone Evolution



This activity is designed to assist students in the recognition of actual archaeological situations, and to provide them with experiences in working with archaeological problems and processes.

Activity

Materials: *Walney Face Poster*

1. Place students in small groups. Show them the Walney face poster. Have them brainstorm in their groups what it might be, who made it, what it was used for, etc. Ask each group to present its ideas to the class. Discuss their ideas.
2. Present the historical background of the face — date, place, location. Is it an artifact, feature, or natural material? Point out that archaeologists have tried to explain the artifact. (It has been removed from its original location.) They know who used it (Coleman Brown), and they know how it was used (as a keystone over a door in a house). Other elements of the explanation process, however, are a mystery.

   Who made it? Why was it used? Discuss possible answers to these questions with

students. Put the Walney face on the timeline at 1780.

3. Review the two theories of origin with the students. Examine the evidence. Make two columns on the chalkboard: **"Afro-origin"** and **"Funeral origin"**. Classify the evidence into each category. Underline all evidence which is compatible with both theories of origin. For example, perhaps a slave carved the tombstone. Consider factors which might make one or the other unlikely. For example, some people may be uncomfortable with a tombstone over their doorway, even a piece of one.
4. Ask students to decide which theory of origin they believe to be valid. Ask them to support their opinions.

Lesson 11

Discuss the Machen time capsule.
Design a time capsule and compare it to the Machen time capsule.

Note to the teacher

The Machen time capsule was made in 1875 by James Machen, and placed in an addition to a small stone house on his property in that year. The house was built by Coleman Brown in 1780. The presence of the time capsule was unknown to members of the Fairfax County Park Authority when they discovered it during renovation of the building in 1981. The time capsule was enclosed in a wooden box. It contained:

- A mustard tin
- Notes on the history of the house written on wood by James Machen
- Confederate money
- Stamps
- A pen nib from Alexandria, Virginia
- A copper plate with "James Machen" punched into it.

The Machen family had lived on this property since 1843. James and his father had farmed the land, and improved it through scientific management techniques. James built a home of his own on the land in 1852. This house burned by retreating Northern troops after the 2nd Battle of Manassas in 1862. James was a member of a Virginia calvary unit. After the war, James returned to the farm and lived with his wife in his parents' home. This house burned to the ground in 1875. The time capsule was included in as addition to the smaller house that same year when it was enlarged for the family after the fire. By this time James was a prosperous dairy farmer.

This activity is designed to assist students in the recognition of actual archaeological sites, and to provide them with experiences in working with archaeological problems and processes.

Activity

Materials *Student activity sheet,* ***Walney Time Capsule*** *(p. 61).*

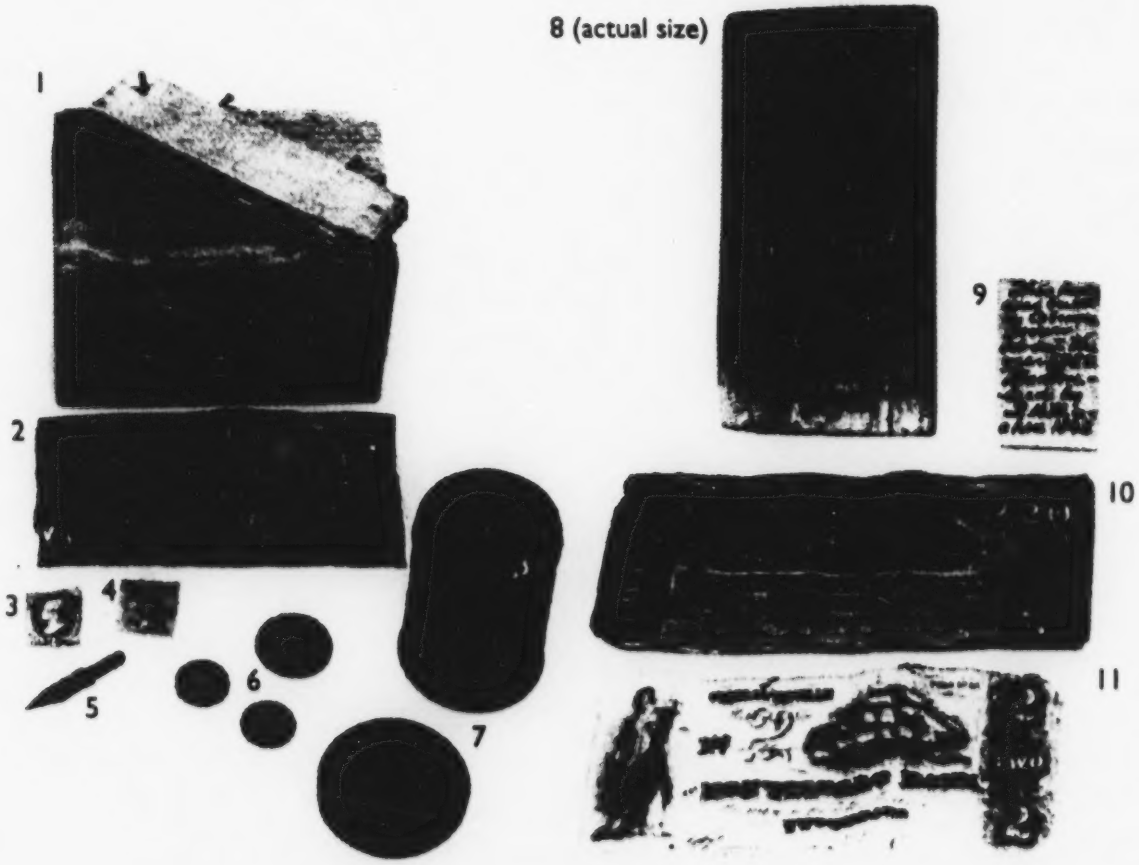
1. Duplicate and distribute the student activity sheet **"Walney Time Capsule"**. This activity sheet is untitled in order to avoid giving clues to its function during the initial discussion. Tell students this collection represents something from Walney. Ask them what it might be. What clues are there to a possible time frame of the materials?

Discuss their suggestions.

2. Explain to students that the materials are from a time capsule. Tell them the background of the time capsule. Point out the lifetime of James Machen on the timeline. Ask students to put the time capsule on the timeline.

3. Ask students why a person might make a time capsule. What might such an action tell about a person? What might the specific contents of the time capsule tell about the person who made it? Discuss the ideas which the students suggest.

4. Ask students to think about their own home or school. Discuss the things which they feel would be important to include in a time capsule about themselves; about their school; about their communities. Have students share with the class why those things would best represent them, why they are important to them. Ask students to guess about how the items in their time capsules might be interpreted in the future. Would the same message get to the future that they tried to send? Why or Why not? How does this influence what they would choose to include in their time capsules? How might their time capsules be discovered? How does their time capsule differ from the one made by James Machen? What similarities exist?



12 (actual size)

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Lesson 12

Visit the Walney site

Note to the teacher

This lesson represents some of the learning experiences which may be conducted by the Park Authority staff at the Walney site. Activities I, II, and III take place in the interpretive center or classroom. Artifacts from the site are used. Activity IV takes place at different archaeological sites in the park. Activity V takes place in the classroom at Walney. Previous concepts are developed and extended.

These activities are designed to introduce students to actual archaeological sites, and to develop and extend the students' use of archaeological terms, techniques, and skills of archaeological problem solving. Time will not permit the use of all activities. Activities will be presented which are most appropriate for each class.

Activity I

1. Tour the interpretive center. Review the land use stages. Show students artifacts from different land use periods.
2. Ask students what the difference is between archaeology and history. What is historically important about Walney? What is archaeologically important to Walney?

Activity II

Materials: *Machen Time Capsule*

1. View and discuss the contents of the time capsule. Ask students to review what they would put into a time capsule of their own.
2. Introduce the concept of standards for the construction of a time capsule. What elements (food, religion, recreation, transportation, education, etc.) would students consider important to represent? Discuss what standards of presentation should apply. Narratives? Artifacts? Other?

ACTIVITY III

Materials: *Maps, artifacts list, artifacts*

1. Divide students into small groups. Give each group several maps, an artifacts list, and artifacts from the site. Allow time for group discussion about the artifacts and what they may indicate about the site — use, time period, lifestyles, etc.
2. Reassemble the large group and have the groups report their opinions. Ask students what evidence supports their positions. Discuss their responses.
3. Tell the students what each artifact is and where it was found. Invite speculation about the items, why they were there to be found, etc.

ACTIVITY IV

1. Tour archaeological sites on the park grounds. Discuss the uses of each. Ask students what might be found at each one. How would each site be excavated? Recorded? Why might the archaeologist have chosen each site for excavation?
2. On the tour of the grounds, point out how this erosion exceeds the extent of normal or expected run-off. Ask why this is the case. To what land use stages might this problem be related? Ask what kind of archaeological evidence this might be. Ask why the farm fields are now forested. Discuss succession.

ACTIVITY V

Materials: *Graph paper, pencils*

Photos, "sand box," artifacts

1. Show the students an infra-red photo of the Walney area. Discuss how archaeological sites are located using this technique. Ask students to use the photo to point out possible sites. Show the students photos of the Civil War encampments in Centreville. What do they notice that would have had an impact on the land? Point out that all the wood buildings, plus the need for fuel, are what took the trees from the land at Walney during this period. Review the effects of this which they have seen during the tour.
2. Show the students the "sand box." Tell them that it represents an archaeological site at Walney, and that artifacts are expected to be found. Remind them of Lesson 4, Activity II. Point out that records need to be kept of the dig. Ask the students to tell you why. Ask them what they might do to record the information. Discuss their suggestions.
3. Distribute graph paper. (Instead of all the students keeping records of the "dig," have three or four keep the records with assistance from a buddy for verification.) Ask students to draw and label a grid. Allow time for them to do this. Have students

excavate the "sand box" site. Review how to record each find according to the grid location and vertical depth, and allow time for students to do this as artifacts are found. Ask students to describe the artifacts.

4. Discuss the artifacts which are found. Ask students what they think the artifacts might be. What were they used for? Why? Classify types of artifacts found into probable land use stages. Show on the timeline when the artifact might have been used at Walney. Discuss with students how the records of the site help to determine their time frame. What problems do you run into when trying to explain artifacts? What might be done to deal with such problems.

Lesson 13

Follow up the Walney site visit

Note to the teacher

This lesson provides follow-up activities to the on-site visit and culminating activities through which students can apply the concepts and processes emphasized in the unit. Teachers may wish to focus on one, two, or all three of the activities with the class. Activities can be expanded in response to student interest.

Activity I

Materials: *Paper and pencils*

1. Review the theories of origin of the Walney face, and the additional clue which students received at Walney. Ask students to evaluate their earlier conclusion, and to support their present position based on all the evidence.
2. Apply personification to the Walney face and write his story as he might tell it. Who made him? Where? Why? What has he witnessed while sitting over the door, etc.?
3. Have students share their stories with the class. How do they compare with those of other students? What parts might students agree with? Disagree with?

ACTIVITY II

Materials: *Materials for the construction of time capsules (paper, clay, magazines, items from home, etc.)*

1. Review standards established by the students for individual time capsules. Have students construct their own time capsule based on these standards.
2. Allow time for students to construct their own time capsules. Ask students to present them to the class. Discuss their time capsules. Why did they include what they did? Where would they put it so that it would be likely to be found? Ask the class if time capsules comply with the standards developed by the class. Why or why not? Which time capsule would they recommend?

Activity III

Materials: *Materials for the construction of artifacts (paper, clay, etc.) and "sand box"*

1. Ask students to think about the land use stages at Walney. Point out that this activity permits them to be creative and apply what they have learned. Tell them to create artifacts to represent different stages of land use at Walney. Review some which were seen at the site to begin their thinking. Recall if any were anticipated by them, but were not found there.
2. Construct a classroom "sand box." Have the students determine where their artifacts would be found in a site. Have students take turns planting their artifacts in the site.
3. After students plant their artifacts, have other students excavate them. Tell them to record the excavation process, and make inferences about their uses,age, etc. Ask them to discuss the artifacts which they found, and the degree to which they are representative of what they know about the site.

Assignment

Name _____

Discussion and activity assignments due sheet

Name _____

Biblography

There are a number of books available to those who wish to pursue the topic of archaeology. A sample of those books which may prove useful are listed below.

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